

SENIN, A.G.

Problems affecting the analysis and synthesis of measuring  
systems for extrapolating random fields. Izv. SO AN SSSR  
no.2. Ser. tekhn. nauk no.1:54-62 '64. (MIRA 17:8)

1. Institut avtomatiki i elektrometrii Sibirskogo otdeleniya  
AN SSSR, Novosibirsk.

ACCESSION NR: AP4028978

8/0280/64/000/002/0081/0086

AUTHOR: Senin, A. G. (Novosibirsk)

TITLE: Transmission of random signals by a linear dynamic system with distributed parameters

SOURCE: AN SSSR. Izvestiya. Tekhnicheskaya kibernetika, no. 2, 1964, 81-86

TOPIC TAGS: random signal, cybernetics, random stationary process, linear dynamic system, distributed parameter system

ABSTRACT: The problem of the statistical dynamics of a distributed-parameter system is considered. Using the thermal conduction equation as an example, the correlation functions and spectral densities of random stationary processes are found. These results helped in developing a formula for the spectral density of a generalized stationary system with three types of boundary conditions. The cooling of a medium flowing in a thick-walled pipeline is used as an example

Card 1/2

ACCESSION NR: AP4036507

S/0103/64/025/005/0653/0660

AUTHOR: Senin, A. G. (Novosibirsk)

TITLE: Statistical problem of synthesis for a distributed-parameter plant

SOURCE: Avtomatika i telemekhanika, v. 25, no. 5, 1964, 653-660

TOPIC TAGS: automatic control, distributed parameter plant, statistical synthesis

ABSTRACT: The problem of synthesizing a measuring system for a random planar field, i.e., a field dependent on time and one spatial coordinate, is considered. The problem is reduced to a solution of the integral equations known in the theory of random processes. The solution determines an optimum transient response of a distributed-control system capable of extrapolating the random field. The intercorrelation function between the unknown and the input signals has this form:

$$R_{\eta\theta}(x, \tau) = \int_0^L dy \int_0^\infty R_{\mu\mu}^{(v)}(x, y, \tau - \theta) k(y, \theta) d\theta \quad (\tau > 0, 0 \leq x \leq L),$$

Card 1/2

L 31089-65 EWT(d)/EPF(n)-2/ENP(1) Po-4/Pq-4/Pg-4/Pae-2/Pu-4/Pk-4/P1-4  
IJP(c) WW/BC

ACCESSION NR: AP5003975

S/0103/65/026/001/0103/0106

AUTHOR: Senin, A. G. (Novosibirsk)

TITLE: Problem of statistical analysis of control systems with distributed parameters

SOURCE: Avtomatika i telemekhanika, v. 26, no. 1, 1965, 103-106

TOPIC TAGS: distributed parameter control system, automatic control, automatic control, automatic control design, automatic control system, automatic control theory

ABSTRACT: Up to now, the dynamic characteristics of distributed-parameter plants were approximated on the basis of experimental data by linear concentrated-parameter units including the delay units. In the present short article, the problem is solved of determining the spectral density of control error when the plant is described by a second-order partial differential equation with

Card 1/2

L 31089-65

ACCESSION NR: AP5003975

constant coefficients and linear boundary conditions. The disturbance is regarded as a stationary random process with a known spectral density. A formula for the error spectral density is developed. The method of solution is illustrated by an example with a thin-wall once-through heat exchanger. Orig. art. has: 2 figures and 24 formulas.

ASSOCIATION: none

SUBMITTED: 20Feb64

ENCL: 00

SUB CODE: IE

NO REF SOV: 002

OTHER: 000

Curd 2/2

SENIN, A.G.

Maximization of a signal-to-noise ratio in presence of  
nonstationary interference. Radiotekh. i elektron. 10  
no.9:1720-1721 S '65. (MIRA 18:9)

L 06314-67 EWT(d)

ACC NR: AP6016321 (N)

SOURCE CODE: UR/0410/65/000/005/0012/0016

AUTHOR: Borisov, B. D. (Novosibirsk); Senin, A. G. (Novosibirsk)

ORG: none

TITLE: On the synthesis of a measurement system for the classification of random processes

SOURCE: Avtometriya, no. 5, 1965, 12-16

TOPIC TAGS: random process, random noise signal, wideband communication

ABSTRACT: A method is proposed for the synthesis of an analog measurement system which can be used to classify random processes. Each channel of the system consists of two linear filters and a square law detector. In the classification problem considered, a signal, observed in the time interval  $[0-T]$  is a realization of one of  $n$  random processes  $\eta_j(t)$  ( $j=1,2,\dots,n$ ) and it is required to establish the nature of the process itself from the accepted realization  $x(t)$ . Problems of this type are encountered in medical and technical diagnostics when random signals must be detected in the presence of background noise or when speech signals must be recognized automatically. In the proposed system, the input signals are measured and transformed and the accepted realization is used to evaluate the correlation function and to compare it with the correlation function of the process to be classified when the latter correlation func-

Card 1/2

UDC: 621.391

L 32610-66 EWT(d)/EWP(v)/EWP(k)/EWP(h)/EWP(1) GD/EC

ACC NR: AT6011924

SOURCE CODE: UR/0000/66/000/000/0028/0031

55  
54  
B+1

AUTHOR: Sinitsyn, V.S. (Novosibirsk); Senin, A.G. (Novosibirsk)

ORG: none

TITLE: The synthesis of measuring information systems for the extrapolation of random uniform fields

SOURCE: Vsesoyuznaya konferentsiya po avtomaticheskomu kontrolyu i metodam elektricheskikh izmereniy, 5th. Avtomaticheskii kontrol' i metody elektricheskikh izmereniy; trudy konferentsii, t. 2: Izmeritel'nyye informatsionnyye sistemy. Ustroystva avtomaticheskogo kontrolya. Elektricheskiye izmereniya neelektricheskikh velichin (Automatic control and electrical measuring techniques; transactions of the conference, v. 2: Information measurement systems. Automatic control devices. Electrical measurements of non-electrical quantities). Novosibirsk, Izd-vo Nauka, 1966, 28-31

TOPIC TAGS: information processing, measuring <sup>system</sup> ~~instrument~~, optimal control, automatic control theory, *random process*

ABSTRACT: Arbitrary dynamical systems are usually under the influence of random interactions, and thus during the analysis and synthesis of measuring systems it is natural to apply statistical methods. Methods developed by the theory of random functions seem to be

Card 1/2



L 32610-66

ACC NR: AT6011924

the most effective. The present article investigates the synthesis of optimum measuring devices for the extrapolation of random uniform fields in a plane, i. e., time- and unidimensional space-dependent fields. Such a problem is encountered if it is necessary, on the basis of information on the past state of the plant, to predict its future state at some sector, or at points of another sector which, for any reason, are inaccessible to direct control. The determination of the optimum operator is reduced to the establishment of the appropriate weight function. In the search for such a function, it is initially assumed that the measurement is carried out at every point of the accessible portion of the space, i. e., distributed control is achieved. It is shown that such a distributed control may be replaced approximately by control at individual points, the signals of which are then summed with the corresponding weight functions. The synthesis is limited to measuring systems for the extrapolation of random uniform fields the correlation function of which depends on the time and space shift. Orig. art. has: 14 formulas.

SUB CODE: 09, 13 / SUBM DATE: 29Nov65 / ORIG REF: 004 / OTH REF: 001

Card 2/2 *20*

SENIN, A.G., inzh.

Water level indicator for open reservoirs. Elek.sta. 31 no.7:85-87  
J1 '60. (MIRA 13:8)

(Hydraulic power stations)  
(Liquid level indicators)  
(Reservoirs)

83684

S/135/60/000/010/006/015  
A006/A001

1.2300 ~~only 2208~~ also 2308

AUTHORS: Novokreshchenov, M. M., Podvol'skiy, L. I., Senin, A. M., Engineers

TITLE: Condenser Butt Welding of BT-1-2 (VT-1-2) Titanium and 1X18H9T  
(1Kh18N9T) Steel Pipes

PERIODICAL: Svarochnoye proizvodstvo, 1960, No. 10, pp. 20-22

TEXT: An investigation was made at NIIAVTOPROM of the condenser resistance welding of VT-1-2 titanium and 1Kh18N9T steel pipes of 10-23 mm in diameter and 1.0-1.5 mm wall thickness. The experiments were made on a laboratory machine equipped with a TKM-200-3-1 (TKI-200-3-1) transformer from the "Elektrik" plant. Pipe sections of 70 and 200 mm length were welded. One part of the pipes was surface-etched prior to welding. In all cases welding was performed without a gas shield. Optimum values were set up for the capacitance of the capacitor battery, the charging voltage, the up-setting force, the effective throat depth of the pipe from the insert electrodes and the transformation coefficient of the welding transformer. The conditions established (given in a table), were used to carry out control welds of pipes which were then tested as to the tightness, elongation and vibration strength of the welds. On account of the fact

Card 1/2

83684

S/135/60/000/010/006/015

A006/A001

Condenser Butt Welding of VT-1-2 (VT-1-2) Titanium and 1X18H9T (1Kh18N9T) Steel Pipes

that in condenser welding cast metal is not present in the weld and the zone of the thermal effect does not exceed 0.1 mm, an attempt was made of eliminating heat treatment of VT-1-2 alloy pipes after welding. The pipes were not heat treated and were tested 6 months after welding. The steel and titanium pipes were consecutively subjected to hydraulic (300 atm), pneumatic (200 atm) tests, and to tests under vibration load with repeated hydraulic and pneumatic tests at the indicated pressure. Vibration tests were performed for 6 hours on a special stand (Fig. 4) in vertical direction at 45 to 50 cycles frequency and  $1 \pm 0.1$  mm amplitude. 20 to 25 pipes of each diameter and grade were tested and no cases of breakdown or loss in tightness were stated. It is concluded that the described welding method produces strong and stable joints when welding VT-1-2 titanium and 1Kh18N9T steel pipes. There are no oxides, cracks or other defects in the butts. Heat treatment of VT-1-2 pipes can be eliminated. Preliminary etching which is necessary in argon arc welding is not required for condenser welding of Ti alloys, which may be carried out without shielding the butt zone. There are 5 figures and 1 table. X

Card 2/2

SENIN, A.M., inzh.; SUKHORUKOV, A.P., inzh.

Pores in argon-arc welded joints in titanium alloys and measures  
for preventing them. Svar. proizv. 12:24-26 D '63. (MIRA 18:9)

L 63952-65 EPA(s)-2/EWT(m)/EPF(c)/EPF(n)-2/ENP(v)/T/ENP(t)/ENP(k)/ENP(b)/  
 ENA(c) LJP(c) MJW/JD/HM/JW/JG

ACCESSION NR: AP5020156

UR/0135/65/000/008/0001/0003 64  
 621.791:669.295.5:669.35 19  
 3

AUTHOR: Mikhaylov, A. S. <sup>44,55</sup> (Engineer); Slonimskiy, Ye. V. <sup>44,55</sup> (Engineer); Senin,  
A. M. <sup>44,55</sup> (Engineer); Sukhorukov, A. P. <sup>44,55</sup> (Engineer)

TITLE: Welding titanium alloys to copper and its alloys  
<sup>44,55</sup> 27

SOURCE: Svarochnoye proizvodstvo, no. 8, 1965, 1-3

TOPIC TAGS: welding, TIG welding, titanium alloy, copper, copper  
 alloy, titanium alloy copper welding, dissimilar metal welding,  
 molybdenum containing alloy, niobium containing alloy, tantalum con-  
 taining alloy/VT15 alloy, BrKh08 bronze, 11 copper alloy 27

ABSTRACT: The feasibility of welding titanium alloy to copper and  
 its alloys has been investigated. Sheets 1.5--2 mm thick of  $\beta$ -tita-  
nium alloy VT15 (3.50% Al, 7.50% Mo, and 11.30% Cr) and experimental  
 $\beta$ -alloys containing 20 Mo, 30 Mo, 20 Nb, 30 Nb, or 30 Ta were TIG  
welded to M3 copper. The best results were achieved with Ti-30 Nb  
and VT15 alloy: a tensile strength of 18.0--25.4 and 20.5--24 kg/mm<sup>2</sup>,  
and a bend angle of 172--180 and 142--180 deg, respectively. The

Card 1/2

L 63952-65

ACCESSION NR: AP5020156

failure occurred in copper. With other alloys failure occurred mostly in the weld. Good results were also obtained in welding Ti-30 Nb alloy to BrKh08 bronze and VT15 alloy to copper-cobalt-beryllium, alloy 11. The weld strength was roughly the same as that of the copper alloys at all temperatures up to 800C. Thus, copper alloys can be directly welded to titanium alloys with a stable  $\beta$  structure. Such an alloy can also be used as an insert in welding copper alloys to other types of titanium alloys. Orig. art. has: 4 figures and 4 tables. [ND]

ASSOCIATION: none

SUBMITTED: 00

ENCL: 00

SUB CODE: MM

NO REF SOV: 005

OTHER: 000

ATD PRESS: 1071

Card 2/2

1 02950-51 EWI(m)/EWP(w)/T/EWP(t)/ETI/EWP(r) IJP(c) JD/HW

ACC NR: AP6032455

SOURCE CODE: UR/0129/66/000/009/0030/0033

AUTHOR: Shorshorov, M. Kh.; Antipov, V. I.; Senin, A. M.; Belov, V. V.

ORG: Institute of Metallurgy, AN SSSR (Institut metallurgii AN SSSR)

TITLE: Polygonization of austenite subjected to low temperature thermomechanical treatment

SOURCE: Metallovedeniye i termicheskaya obrabotka metallo, no. 9, 1966, 30-33 and appropriate insert facing p. 49

TOPIC TAGS: *cryogenic metalworking, steel, austenite, steel, polygonization development, thermomechanical property, mechanical treatment, high strength steel*  
 15Kh11MF steel, 15Kh12NMVFA steel, 25Kh2GSNVM steel, 28Kh3SNMVFA steel

ABSTRACT: The effect of polygonization annealing on the properties of superstrength steels subjected to low temperature thermomechanical treatment (LTMT) has been investigated. The schematic layout of the continuous process combining LTMT and polygonization annealing (Author Certificate 155161) is shown in Fig. 1. Specimens of 15Kh11MF, 15Kh12NMVFA, 25Kh2GSNVM, and 28Kh3SNMVFA steels were heated to 1050, 1100 and 1200C and cooled in an air jet to 550C, at which temperature they were stretched by 30—37%, immediately rapidly reheated to 550—700C, kept at that temperature from 0 to 5000 sec (polygonization annealing), and then cooled in an air jet. It was found that polygonization annealing improved the strength only very

Card 1/2

UDC: 621.789.669.14.018.85



L 02980-67

ACC NR: AP6032455

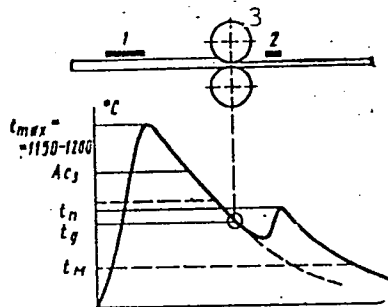


Fig. 1. Layout of continuous LTMT with polygonization annealing

1 - Inductor for recrystallization annealing; 2 - inductor for polygonization annealing; 3 - rolls.

slightly, but greatly increased the ductility. For instance, conventionally heat treated 25Kh2GSVM and 28Kh3SNMVFA steels had a tensile strength of 190 kg/mm<sup>2</sup> and 198 kg/mm<sup>2</sup>, and a reduction of area of 20% and 17%, respectively. The same steels, after LTMT but without polygonization, had a strength of 212 kg/mm<sup>2</sup> and 223 kg/mm<sup>2</sup>, and a reduction of area of 26.8% and 26%, respectively. After polygonization annealing at 600C for 20—100 sec (optimal conditions), the strength was 217—218 kg/mm<sup>2</sup> and 225 kg/mm<sup>2</sup>, and the reduction of area 36.6—38% and 34%, respectively. Orig. art. has: 4 figures and 1 table.

SUB CODE: 11/ SUBM DATE: none/ ORIG REF: 003/ ATD PRESS: 5099

Card 2/2

SENIN, A.S.

*nit*  
Low-form thickeners in gold-extracting plants. A. S.  
Senin and A. I. Molodykh. *Tsvetnye Metally* 1956, No. 3,  
10-14. — Low-form, 2-stage thickeners are described and the  
space economy evaluated. I. Bencowitz

PREOBRAZHENSKIY, N.G.; SENINA, A.V.; SENINA, S.V.

Calculating the function of a source for an optically dense  
plasma layer. Izv. vys. ucheb. zav.; fiz. 8 no.6:67-74 '65.  
(MIRA 19:1)

1. Sibirskiy fiziko-tekhnicheskii institut imeni V.D. Kuzne-  
tsova. Submitted March 11, 1964.

KULIKOVSKIY, L.F.; STEPANYAN, A.A.; CHERNOV, S.Ye.; SENIN, B.A.

Device for measurement of drilling rates, lowering and hoisting  
of tools, and well-shaft drilling. Izv.vys.ucheb.zav.; neft' i gaz  
5 no.12:87-92 '62. (MIRA 17:4)

1. Kuybyshevskiy politekhnicheskii institut imeni Kuybysheva.

SENIN, G.; SMOLENOV, B.

Visiting innovators of the Ural Machinery Factory. Nauka i zhizn'  
23 no.8:31-34 Ag '56. (MIRA 9:9)  
(Sverdlovsk--Machine tool industry)

SENIN, I.

The shortened workday is a great social benefit. Sots. turd 5 no.9:  
3-9 S '60. (MIRA 13:10)

1. Zamestitel' predsedatelya Soveta ministrov USSR.  
(Ukraine--Hours of labor)

SENIN, I. Ye. Cand Agr Sci -- (diss) "Basic zootechn<sup>y</sup>~~ological~~ measures for  
the reising of the production of milk in the suburban area of the city of Mos<sup>c</sup>ow."  
Mos, 1959. 16 pp (All-Union Sci Res Inst of Animal Husbandry), 150 copies  
(KL, 45-59, 148)

-71-

SENIN, I.Ye., kand. sel'khoz.nauk; MASHKINA, A., red.; KUZNETSOVA, A.,  
tekhn. red.

[Pocket manual for the milkmaid] Karmannyi spravochnik dqiarki.  
Moskva, Mosk. rabochii, 1962. 110 p. (MIRA 16:2)  
(Dairy cattle)



*Senin, M. D.*

USSR/Physical Chemistry - Thermodynamics, Thermochemistry, Equilibria,  
Physical-Chemical Analysis, Phase Transitions.

B-8

Abs Jour: Referat. Zhurnal Khimii, No 2, 1958, 3759

Author : M.M. Popov. M.D. Senin.

Inst :

Title : To the Question of  $UI_4 \rightleftharpoons UI + I$  Equilibrium.

Orig Pub: Zh. neorgan. khimii, 1957, 2, No 7, 1479-1481.

Abstract: The reaction  $UI_4 \rightleftharpoons UI_3 + I$  was investigated at 1097 to 1176°K by the method of freezing the equilibrium state and following analysis of dissociation products. The equilibrium constant  $K_p = P_I / P_{UI_4} = 4.57 \cdot 10^{-2}$  at 1097°K and  $5.37 \cdot 10^{-2}$  at 1176°K. The reaction heat of  $UI_3$  (liquid) + I (gas) =  $UI_4$  (gas) at 1136°K was computed to be  $5.2 \pm 0.7$  kcal per mole, the maximum work at 1097°K  $A = 6.73 \pm 0.05$  and at 1176°K  $A = 6.83 \pm 0.01$  kcal per mole. The density of  $UI_3$  was found to be  $d_4^{25} = 6.38$  per cub. cm, the melting point is  $766.5 \pm 1^\circ C$ .

Card : 1/1

-9-

SCV/78-5-8-2/46

AUTHORS:

Popov, M. M., (Deceased),  
Gal'chenko, G. L., Senin, M. D.

TITLE:

The True Specific Heat of  $UO_2$ ,  $U_3O_8$  and  $UO_3$  at High  
Temperatures (Istinnyye teployemkosti  $UO_2$ ,  $U_3O_8$  i  $UO_3$  pri  
vysokikh temperaturakh)

PERIODICAL:

Zhurnal neorganicheskoy khimii, 1958, Vol. 3, Nr 8,  
pp. 1734-1737 (USSR)

ABSTRACT:

The determination of the true specific heat of finely powdered samples of  $UO_2$ ,  $U_3O_8$  and  $UO_3$  was accomplished by the method of direct heating and by continuous addition of an exactly calculated quantity of heat by means of metallic and quartz calorimeters. The specific heat of  $U_3O_8$  was determined in the platinum calorimeter. The rate of temperature of the true molar heat is expressed by the following equations:

$$UO_2 \text{ at } 160-600^\circ C_p = 15.29 + 1.716 \cdot 10^{-2} T - 1.41 \cdot 10^{-5} T^2,$$

$$U_3O_8 \text{ at } 100-500^\circ C_p = 53.51 + 8.99 \cdot 10^{-2} T - 1.279 \cdot 10^{-4} T^2,$$

Card 1/2

The True Specific Heat of  $UO_2$ ,  $U_3O_8$  and  $UC_3$   
at High Temperatures.

SOV/78-3-8-4/48

$U_3O_8$  at  $400-600^\circ$   $C_p = 64,25 + 1,582 \cdot 10^{-2} T$ ,

$UC_3$  at  $119-400^\circ$   $C_p = 20,12 + 1,15 \cdot 10^{-2} T - 4,36 \cdot 10^{-6} T^2$ .

There are 4 tables and 4 references, 1 of which is Soviet.

SUBMITTED: February 15, 1958

Card 2/2

*SENIN M. D.* 89-3-15/30

AUTHORS: Popov, M. M. , (Deceased), Gagarinskiy, Yu. V. ; Senin, M. D. ,  
Mikhalenko, I. P. , Morozov, Yu. M.

TITLE: The Mean  $\beta$ -Ray Energy and the Decay Constant of Tritium  
(Srednyaya energiya  $\beta$ -chastits i postoyannaya raspada tritiya)

PERIODICAL: Atomnaya Energiya, 1958, Vol. 4, Nr 3, pp. 297 - 298 (USSR)

ABSTRACT: First the apparatus is described by means of which uranium-  
-tritide is produced. The method of measurement (a calori-  
metric one) is described. The experiments furnished the fol-  
lowing values:

$T_{1/2}$  for  $H^3$  : 12,58  $\pm$  0,18 a

$\bar{E}_{\beta^-}$  : 5,52  $\pm$  0,01 KeV

There are 1 figure, 2 tables, and 6 references, 1 of which  
is Slavic.

SUBMITTED: August 10, 1957  
Card 1/2

89-3-15/30

The Mean  $\beta$ -Ray Energy and the Decay Constant of Tritium

AVAILABLE: Library of Congress

1. Tritium-Decay constant
2. Tritium- $\beta$ -Ray energy

Card 2/2

SOV/120-59-1-30/50

AUTHORS: Senin, M. D., Morozov, Yu. M., Karpova, T. F.

TITLE: Gas Balance with a Magnetic Arrestor (Gazovyye vesy s magnitnym arretirovaniem)

PERIODICAL: Priroda i tekhnika eksperimenta, 1959, Nr 1, pp 125-127 (USSR)

ABSTRACT: In the determination of the isotopic composition of hydrogen or the density of radioactive gases by means of gas balances (Refs 1-3) the gases under investigation may become contaminated by vacuum grease used in the seals of the arresting devices. The present paper describes quartz gas balances in which this disadvantage is removed. They are arrested by means of a permanent magnet. The sensitivity of the balance

is  $4.4 \times 10^{-8} \text{ g/cm}^3$  (change in the density per scale division). The balance is illustrated in Fig 1. The balance beam 2 is 230 mm long and is prepared from fused quartz rods 1.5 mm in diameter. It is in the form of a very narrow triangle. A hollow quartz sphere is attached to one end of this triangle. In the working position the triangle rests on two corundum pins 13 as shown in Fig 1. The distance from the centre of the sphere to these pins is 95 mm. The weight of the sphere is 1.6 g and its volume 29  $\text{cm}^3$ . It is balanced by a quartz

Card 1/2

SOV/120-59-1-30/50

Gas Balance with a Magnetic Arrestor

sphere bearing a pointer. The total weight of the beam is 5 g. The balance is brought into action by the arrestor lever 14 which rests on two supports 3. The arrestor is operated by means of an external magnet. There are 2 figures and 10 references, of which 3 are German, 2 are Soviet and the rest are English.

SUBMITTED: January 8, 1958.

Card 2/2

5(4)  
 AUTHORS: Popov, M. M. (Deceased), Gal'chenko, G. L., Senin, M. D. S07/78-4-6-5/44  
 TITLE: The Specific <sup>Heat</sup> and the Heat of Fusion of  $UCl_4$  and  $UJ_4$ , and the Transformation Heat of  $UJ_4$   
 (Teployemkosti i teploty plavleniya  $UCl_4$  i  $UJ_4$ , teplota prevrashcheniya  $UJ_4$ )  
 PERIODICAL: Zhurnal neorganicheskoy khimii, 1959, Vol 4, Nr 6, pp 1241-1245 (USSR)  
 ABSTRACT: The specific heat, the heat of fusion of  $UCl_4$  and  $UJ_4$ , and the transformation heat of  $UJ_4$  were determined. The investigation results are given in tables 1 and 2. The initial material for  $UCl_4$  and  $UJ_4$  was produced by chlorination or iodizing of uranium salts of uranium metals. The results concerning the apparent specific heat of  $UJ_4$  are given in table 3 and figure 2. The specific heat of  $UJ_4$  changes anomalously in a temperature interval of from 453-528°, the polymorphous transformation takes place in a temperature interval of from 453-505°.

Card 1/2

The Specific<sup>Heat</sup> and the Heat of Fusion of  $UCl_4$  and  $UJ_4$ , and the Transformation Heat of  $UJ_4$  SOV/78-4-6-5/44

The transformation heat for  $UJ_4$  amounts to  $3526 \pm 58$  cal/mol.

The melting heats of  $UCl_4$  and  $UJ_4$  amount to  $11938 \pm 22$ - and  $5637 \pm 100$  cal/mol. There are 2 figures, 5 tables, and 7 references, 5 of which are Soviet.

SUBMITTED: March 25, 1958

Card 2/2



AUTHORS: Iovchuk, M. T., Corresponding Member of 30-58-4-9/44  
the Academy of Sciences of the USSR,  
Senin, N. G., Candidate of Philosophical Sciences

TITLE: Cooperation of Chinese and Soviet Philosophy-Historians  
(Sotrudnichestvo kitayskikh i sovetskikh istorikov  
filosofii)

PERIODICAL: Vestnik Akademii Nauk SSSR, 1958, , Nr 4,  
pp. 58-65 (USSR)

ABSTRACT: In the last years Soviet and Chinese scientists  
established close contact in philosophy. An exchange of  
scientific literature and research experience was  
introduced. There is also given mutual help in the  
education of the supply of scientific personal. In order  
to investigate the centuries-old Chinese philosophical  
history the efforts of the scientists of the Institute  
for Philosophy of the Academy of Sciences of the USSR and  
of the recently founded Institute for Philosophy of the  
Academy of Sciences of the KNR are united and coordinated.  
A group of Chinese scientists consisting of the professors  
Fyn Din (head of the delegation), Zhen' Tszi-yuy, Khe Lin

Card 1/4

Cooperation of Chinese and Soviet Philosophy-Historians 30-58-4-9/44

and the Second Director of the Institute for Philosophy of the Academy of Sciences of the KNR Chzhan Yun visited the Soviet Union and established contacts with the specialists for philosophy of the Academy of Sciences of the USSR, the Academy of Sciences of the Ukrainian SSR, the Moscow, Leningrad and Kiyev universities. The Soviet Historians of Chinese philosophy (Yan Kin-sun and N. G. Senin), visited China. Chinese and Soviet philosophy historians together prepared in the years 1954-1957 for the already published two volumes of the history of philosophy parts on the history of eastern philosophy of the slaveholder- and feudal societies, as well as on the period of the decadence of the feudal connections in the eastern countries (up to about 1870). The Institute for Philosophy of the Academy of Sciences of the USSR in the year 1957 together with a group of Chinese scientists, who had come to the USSR, held a scientific meeting on problems of the eastern history of philosophy where they dealt with the reports by Zhen'Tszi-yuy, M. T. Iovchuk, N. G. Senin. The Soviet philosophy historians Ya. B. Radul'Zatulovskiy, Yan-Khin-shun and I. Ya. Shchipanov took part in this

Card 2/4

Cooperation of Chinese and Soviet Philosophy-Historians 30-~~5~~-4-9/44

conference. As to publish an encyclopedia "Classic Chinese Philosophy" in Chinese and Russian language there was formed a Chinese-Soviet editorial commission presided by Pan' Tszy-nya, Director of the Institute for Philosophy of the Academy of Sciences of the KNR. Of great help therefore are the works of the President of the Academy of Sciences of the KNR Go Mo-zho, as well as those by the Chinese scientists Khou Vay-lu, Lyuy Chzhen-yu, Yan Yun-go and others. There are also mentioned the works by the Soviet Members of the Academy I. P. Minayev, F. I. Shcherbatskiy, S. F. Ol'denburg, B. A. Turayev, I. Ku. Krachkovskiy, V. M. Alekseyev, A. P. Barannikov, the Corresponding Member of the Academy of Sciences of the USSR. Ye. E. Bertel's and others. In the last 10-15 years in the Soviet Union works about eastern history of philosophy were published by N. I. Konrad, A. O. Makovel'skiy, Ya. B. Radul'-Zatulovskiy, A. A. Petrov, Yu. P. Frants, Yan Khin-shun, N. P. Anikayev, in which the opinion is condemned that only European countries may be regards as native places of philosophy. Since the beginning of the year 1957 a large scientific discussion about arose in Peking the

Card 3/4

Cooperation of Chinese and Soviet Philosophy-Historians 30-58 4-9/44

the questions in dispute on which Zhen' Tszi-yuy reported at the meeting of the Institute for Philosophy of the Academy of Sciences of the USSR and which are described in detail. In Summer 1957 in Peking a second discussion of these problems took place. The Soviet and Chinese scientists have to meet with the problem of composing a history of the eastern philosophy of the second half of the nineteenth, as well as of the first half of the twentieth century. Nevertheless to point out the historical evolution of the development of Marxist philosophy in China after the October revolution and its struggle against idealism is called a much more important task.

- ∴ 1. Intellectual cooperation--China 2. Intellectual cooperation--USSR 3. Philosophy--China

Card 4/4

KARPACHEVA, S.M., doktor khim. nauk; MEDVEDEV, S.F., inzh.; SENIN, P.T., inzh.;  
ZAKHAROV, Ye.I., inzh.

Efficiency of packed extraction towers and sectional columns.  
Khim. mash. no. 4:10-13 JI-Ag '59. (MIRA 12:12)  
(Packed towers)

SENIN, V.G.; DOBROKHOTOV, A.A.

Increasing the durability of the lower section of open-hearth  
furnaces. Metallurg 10 no.8:19-20 Ag '64.

(MIRA 17:11)

1. Chelyabinskiy metallurgicheskiy zavod.

SENIN, V.P.

ZOLOTAREV, V.I.; AVSENEV, Yu.M.; KAPRANOV, I.A.; KISVIANTSEV, L.A.; PEKSEV, Yu.A.; SHVETSOV, N.I.; TELEGIN, Ya.I.; POTAPOV, V.I.; KISVIANTSEV, L.A.; ZYKOV, A.A.; NETHUSOV, A.A.; SENIN, V.P.; MAKSIMOVA, A.P.; NIKOLAYENKO, Zh.I.; VOLKOV, N.V.; KALASHNIKOV, A.A.; FLAKSIN, S.V.; POPOV, N.N.; KARSHINOV, L.N.; YAKIMOVA, T.A.; BASHEANIKHIN, I.K.; KETKOVICH, A.Ya.; SHALASHOV, V.P.; VORONKOV, P.N.; VEKSHIN, G.K.; CHISTYAKOV, M.A.; IVANOV, N.I., red.; SLADKOVSKIY, M.I., red.; LEPNIKOVA, Ye., red.; MOSKVINA, R., tekhn.red.

[Development of the economy of the people's democracies; a survey for 1957] Razvitie ekonomiki stran narodnoi demokratii; obzor za 1957 g. Pod red.N.I.Ivanova i dr. Moskva, Izd-vo sotsial'no-ekon. lit-ry, 1958. 610 p. (MIRA 12:2)

1. Moscow. Nauchno-issledovat. kon'yunktorny institut.  
(People's democracies) (Economic conditions)

ZOLOTAREV, V.I.; PEKSHEV, Yu.A.; LENSIIY, B.V.; AVSEMEV, Yu.M.; KISVIANTSEV,  
L.A.; SHVETSOV, N.I.; TELEGIN, Ya.I.; ZYKOV, A.A.; SEKHIN, Y.P.;  
NETRUSOV, A.A.; GAVRILOV, V.V.; NIKOLAYENKO, Zh.I.; VOLKOV, N.V.;  
KALASHNIKOV, A.A.; PLAKSIN, S.V.; POPOV, N.N.; KARSHINOV, L.N.;  
YAKIMOVA, T.A.; SHALASHOV, V.P.; KOSONOGOV, L.A.; PUSENKOV, N.N.;  
LEPNIKOVA, Ye., red.; MOSKVINA, R., tekhn.red.

[Economic development in the people's democracies; survey for 1958]  
Razvitie ekonomiki stran narodnoi demokratii; obzor za 1958 g. Pod  
red.M.I.Sladkovskogo i dr. Moskva, Izd-vo sotsial'no-ekon.lit-ry.  
1959. 358 p. (MIRA 13:7)

1. Moscow. Nauchno-issledovatel'skiy kon'yunktorny institut.  
(Communist countries--Economic conditions)



KAPELINSKIY, Yu.N., kand.ekonom.nauk; KISVYANTSEV, L.A.; PANKIN, M.S.;  
PEKSHEV, Yu.A., kand.ekonom.nauk; SENIN, V.P.; SYCHEV, V.G.;  
FIGURNOV, P.K., prof., red.; SLADKOVSKIY, M.I., doktor ekonom.  
nauk, red.; LEVITAN, I.M., red.izd-va; PAVLOVSKIY, A.A.,  
tekhn.red.

[Growth of the economy and the foreign commerce of the Chinese  
People's Republic] Razvitie ekonomiki i vneshneekonomicheskikh  
svyazei Kitaiskoi Narodnoi Respubliki. Moskva, Vneshtorgizdat,  
1959. 559 p. (MIRA 12:6)  
(China--Economic conditions) (China--Commerce)

AUTHOR: Senin, V.S. SOV/115-58-6-24/43

TITLE: Experience Gained in Measuring the Temperature of a Liquid by Means of **Semiconductor Thermistors** (Opyt izmereniya temperatury zhidkosti pri pomoshchi poluprovodnikovyykh termosoprotivleniy)

PERIODICAL: Izmeritel'naya tekhnika, 1958, Nr 6, pp 59-60 (USSR)

ABSTRACT: **Semiconductor thermistors** have a higher sensitivity than thermocouples or metal resistance thermometers. It reaches 2-6 % of the initial resistance per 1° C temperature change. The Soviet **thermistor** T8R was experimentally used to measure the temperature of a liquid. It has a resistance of 500-700 ohms at 20° C. The temperature coefficient is 3-4 % per 1° C. The measured temperatures range from -100 to +120° C. The installation of the temperature transducer in the liquid is shown by Figure 1. For recording, an automatic electronic recording bridge type EMP-209, produced by the plant "Lenteplo-pribor" is used. The squared average error of measurement does not exceed  $\pm 0.5^{\circ}$  C. There are 2 diagrams, 1 graph and 4 Soviet references.

Card 1/1

9(4)

AUTHOR:

Senin, V. S., Engineer

SOV/119-59-9-6/19

Semiconductor

TITLE:

The Application of Thermistors in Appliances for the Measurement of the Temperature

PERIODICAL:

Priborostroyeniye, 1959, Nr 9, pp 15-17 (USSR)

ABSTRACT:

The significant temperature dependence and the small dimensions (as little as some tenths of a millimeter) of the resistance of thermistors render them particularly valuable for use in temperature primary elements. The temperature coefficient  $\alpha_T$  of the semiconductor thermocouple elements is negative, attaining 5 to 6% (on raising the temperature by  $10^\circ$ ) of the nominal value of the "cold" resistance. Contrary to metals the thermistors have a nonlinear temperature dependence. The temperature characteristic of thermistors in the temperature interval  $-60 - +120^\circ \text{C}$  may be expressed by the relation

$R_T = Ae^{-B/T}$  with sufficient accuracy. In this expression  $R_T$  denotes the resistance of the operating body of the thermistor at a given temperature in ohm,  $T$  the temperature in degrees Kelvin;  $A$  and  $B$  coefficients which are constant for a given

Card 1/3

Semiconductor  
The Application of Thermistors in Appliances for the  
Measurement of the Temperature

SOV/119-59-9-6/19

thermistor. The temperature coefficient  $\alpha_T$  for the temperature  $T$  is expressed by formula  $\alpha_T = -B/T^2$ .

Some data on thermistors applicable for temperature measurement are given in a table. The instrument has a nonlinear scale for direct reading of the temperature. In order to linearize this scale, the thermistor is shunted. In some cases this is also insufficient, and a further resistor has to be added. Linearizing the characteristic of the thermistor of course also reduces the sensitivity. The second diagram shows the temperature dependence of the resistance for the thermistor TSh-1 for different values of shunt. For the calculation of temperature measuring instruments it is necessary to know not only the temperature dependence of the thermistor, but also the current-voltage characteristic of the thermistor. It is this current-voltage characteristic which is decisive for the choice of the working point. An operating current of 70 to 100 microampere is used for the thermistors T8R and TSh-1. Thermistors are applied, for example, for the measurement of the temperature of a liquid in experiments involving a temperature variation of the liquid

Card 2/3

Semiconductor

The Application of Thermistors in Appliances for the  
Measurement of the Temperature

SOV/119-59-9-6/19

from  $-20$  to  $+100^{\circ}\text{C}$ . The persistancy of this device amounted to 5 to 60 sec, the distance between the object to be measured and the instrument desk being approximately 20 m. Open thermistors of the types TSh-1 and T8R (without protective glass balloon) were used as primary elements. The construction of these primary elements, which is fairly simple, is described briefly. The most suitable circuit diagram for the primary element is that of an unbalanced Wheatstone bridge. This diagram is simple and reliable in operation. A figure gives the calibration curves of the primary elements with the thermistors type TSh-1 and T8R. These calibration curves are practically linear over the whole temperature interval. The instrument discussed here can be applied in various fields of machine construction (especially the testing of machines) as well as in the chemical-, the food-, or the medical industry. There are 7 figures, 1 table, and 6 references, 5 of which are Soviet.

Card 3/3

KASPIROVICH, V. I.; SEMIN, V. S.

Changing the measurement limit of the EPP-09 automatic recording  
electronic potentiometer. Priborostroenie no.8:25 Ag '60.

(MIRA 13:9)

(Potentiometer)

SENIN, V. I.

Cand Agr Sci - (diss) "Periods, standards, and methods of fertilizing young plantings of apples in the south-eastern oblasts of the Ukraine." Kishinev, 1961. 20 pp; with diagrams; (Kishinev Agr Inst imeni M. V.Frunze); 150 copies; price not given; (KL, 7-61 sup,252)

L 06143-57 ENT(1)/FCC GW

ACC NR: AR6017547

SOURCE CODE: UR/0169/66/000/001/D014/D014

AUTHOR: Parkhomovskiy, O.A.; Andreyeva, R.I.; Burakowskiy, L.Ye. Goncharova, T.A.; Grigor'yeva, A.I.; Ivanets, N.I.; Ivanyuta, M.M.; Kozar, L.T.; Raykher, L.D.; Senina, A.S.; Tkachenko, Zh. Ya.; Tkhir, D.G.

TITLE: Determination of the development level of the technique and technology of geological prospecting for oil and gas in the Ukraine

SOURCE: Ref. zh. Geofizika, Abs. 1D97

REF SOURCE: Tr. Ukr. n.-i. geologorazved. in-t, vyp. 10, 1965, 10-17

TOPIC TAGS: prospecting, seismic prospecting, ~~oil prospecting~~, gas prospecting, gravimetry / M-2 MAGNETOMETER, PETROLEUM, magnetometer,

UKRAINE  
ABSTRACT: Geological-geophysical prospecting for oil and gas, completed on the Ukraine during 1960-1962 was analyzed. At present all the oil-bearing territory of the Ukraine is covered by prospecting survey with the M-2 magnetometer. The cost of study was 46.4 roubles/km<sup>2</sup>. The output and precision of the aeromagnetic survey is much better. The gravimetric survey is basically complete. The cost of the total survey was 92.2 roubles per km<sup>2</sup> in 1960 and 47.2 roubles in 1962. Highly precise gravimeters (.01 - .03 mgal) can elucidate various anomalies. In spite of the relative cheapness of the electro-recon method, and its mobility, it has not been afforded the deserved development in the Ukraine. Volume of seismic work reaches 87% of the total geophysical

UDC: 550.830(477)

Card 1/2



L 06143-67

ACC NR: AR6017547

cal work volume. Cost of 1 km of seismic profile work was 560-850 roubles. In 1962, seismic reconstructing instrumentation for the automatic processing of seismograms and design of boring sections: has been developed. Techno-economical indices of structural mapping boring are very high; those of structural-recon boring are at relatively low levels. On the basis of consideration of the possibilities of each method, a methodology for the recon of oil and gas is proposed. Translation of abstract.

SUB CODE: 08

Card 2/2 mte

L 15545-66 EWT(1)/ETC(F)/EPF(n)-2/EWG(m) IJP(c) AT

ACC NR: AP6002083

SOURCE CODE: UR/0139/65/000/006/0067/0074

AUTHORS: Preobrazhenskiy, N. G.; Senina, A. V.; Senina, S. V.

ORG: Siberian Physicotechnical Institute im. V. D. Kuznetsov  
(Sibirskiy fiziko-tekhnicheskii institut) 46

TITLE: Calculation of the source function for an optically dense  
plasma layer 21, 40, 55

SOURCE: Izv. Fizika, no. 6, 1965, 67-74

TOPIC TAGS: plasma radiation, spectral line, plasma density,  
variational method, optic density

ABSTRACT: In view of the importance of the knowledge of the source function for the calculation of the contours and integral intensities of the emitted spectral lines and of the total energy lost by the plasma in a discrete spectrum, and in view of the incomplete development of methods of finding this function, the authors describe certain characteristic features of the calculation of the source function with the aid of the Ritz variational method, for an inhomogeneous optically-

Card 1/2

L 15545-66

ACC NR: AP6002083

dense plasma. Special attention is paid to the dependence of this function on the frequency and on the optical thickness of the layer, and the accuracy of the variational procedure. Methods of calculating the line contour with allowance for deviations from the Maxwellian distribution and for the contribution made by various interaction processes and correlations to the broadening are presented. An expression is derived for the density as a function of the optical transmission of the layer, for the case of contours of the Doppler, dispersion, Voigt, and 'statistical-wing' type. Although the errors of the method are appreciable, they do not exceed 100 per cent, and better accuracy is expected when the choice of trial functions is made more precise. This will be the subject of a separate article. Orig. art. has: 2 figures and 28 formulas.

SUB CODE: 20/ SUBM DATE: 11Mar64/ ORIG REF: 008/ OTH REF: 006

Card

2/2

L 23751-66 EWT(1)/EEC(k)-2/T/EXP(k) IJP(c) WG  
 ACC NR: AP6008109 SOURCE CODE: UR/0139/66/000/001/0042/0047

AUTHOR: Preobrazhenskiy, N. G.; Senina, S. V.; Senina, A. V.

ORG: Siberian Physicotechnical Institute im. V. D. Kuznetsov (Sibirskiy fiziko-  
 tekhnicheskii institut)

TITLE: On the time of <sup>2/</sup>longitudinal relaxation of oriented atoms

SOURCE: IVUZ. Fizika, no. 1, 1966, 42-47

TOPIC TAGS: relaxation process, Zeeman effect, optic spectrum, hyperfine structure

ABSTRACT: The authors present a detailed derivation of expressions for the time of longitudinal relaxation of a system of optically oriented atoms contained in a cell of cylindrical or spherical configuration. The derivation is based on the quantum theory of optical orientation, whereby the longitudinal relaxation is described with the aid of a density-matrix formalism. The results show that the formulas derived for the relaxation times can be useful not only to investigate relaxation processes in the radio frequency of the spectrum (set of Zeeman or hyperfine sub-levels), but also in optical spectroscopy (pair of levels connected with magnetic-dipole transition). Other possible applications of the results are briefly discussed. Orig. art. has: 41 formulas.

SUB CODE: 20/ SUBM DATE: 11Mar64/ ORIG REF: 001/ OTH REF: 005

Card 1/1012

SENINA, G.

Minima of RZ Cassiopeiae and WW Aurigae. Astron. tsir. no. 215:17-18  
O '60. (MIRA 14:3)

1. Kafedra astoronomii Kazanskogo gosudarstvennogo universiteta.  
(Stars, Variable)

S/079/60/030/05/60/074  
B005/B125

5.3200

AUTHORS:

Bogoyavlenskiy, A. F., Senina, L. N.

TITLE:

The Interaction Between 2,4-Dinitro Phenol and Thiourea

PERIODICAL: Zhurnal obshchey khimii, 1960, Vol. 30, No. 5, pp. 1684-1685

TEXT: The authors of the present report investigated the system 2,4-dinitro phenol - thiourea with the aid of thermal analysis. The industrial 2,4-dinitro phenol used crystallized after double recrystallization from acetone in the form of rhombic prisms with a melting point of 113°. The thiourea used (analytically pure) had a melting point of 172° after double recrystallization from alcohol. The melting points in the system studied were determined by a visual capillary method. Fig. 1 shows the melting diagram of the system studied. Two chemical compounds form in the system:  $C_6H_3(NO_2)_2OH \cdot CS(NH_2)_2$  (I) (melting point 165°) and  $4 C_6H_3(NO_2)_2OH \cdot CS(NH_2)_2$  (II) (melting point 118°). Three corresponding eutectic mixtures occur with the melting points 90°, 110°, and 155°. Both chemical compounds mentioned belong to the berthollide type. They differ in their crystal structures

Card 1/2

The Interaction Between 2,4-Dinitro Phenol  
and Thiourea

1071  
S/079/60/030/05/60/074  
B005/B125

and colorations. The compound (II) crystallizes in the form of long needles, which are orange in color; whereas compound (I) solidifies in the form of extraordinarily small crystals yellow in color. Figs. 2-5 show microlayers of the compounds (I) and (II) and of both initial products, 2,4-dinitro phenol and thiourea. In the carrying out of the thermal analysis no evolution of gas occurred in the system under investigation, as would be characteristic of the formation of dinitro aniline in the fusion of thiourea and 2,4-dinitro phenol. This behavior is in contrast to the reaction of 2,4-dinitro phenol with urea, in which dinitro aniline forms. There are 5 figures and 6 references, 4 of which are Soviet.

ASSOCIATION: Kazanskiy aviatsionnyy institut (Kazan' Institute of Aviation)

SUBMITTED: March 12, 1959

X

Card 2/2

SENINA, R.M.; YURKOVA, M.I.; KOKHTEV, A.A., inzhener, redaktor; BOB-  
ROVA, Ye.N., tekhnicheskiiy redaktor.

[High-precision casting of measuring instrument parts; experience  
of the "Kalibr" plant] Vysokotochnoe lit'e detalei izmeritel'nogo  
instrumenta; opyt zavoda "Kalibr." Moskva, Gos. nauchno-tekhn. izd-  
vo mashinostroit. lit-ry, 1951. 41 p. (MLRA 8:2)  
(Measuring instruments) (Die casting)



RAKOVSKIY, V.Ye. doktor tekhn.nauk; RIVKINA, Kh.I., kand.tekhn.nauk;  
SENINA, R.M., inzh.; TKACHENKO, K.M., kand. tekhn.nauk.

Peat bitumens in molding compounds for precision casting. Torf. prom.  
35 no.6:3-6 '58. (MIRA 11:10)

1.Moskovskiy torfyanoy institut. (for Rakovskiy, Rivkina). 2.Nauchno-  
issledovatel'skiy institut liteynogo mashinostroyeniya (for Senina,  
Tkachenko).

(Precision casting) (Bitumen)

SOV/128-59-7-15/25

18(5)

AUTHOR:

Rakovskiy, V.E., Doctor of Technical Sciences and  
Tkachenko, K.M. and Rivkina, Kh. I., Candidates of  
Technical Sciences and Senina, R.M., Engineer

TITLE:

Peat Bitumens in Pattern Materials for Precision  
Casting

PERIODICAL:

Diteynoye Proizvodstvo, 1959, Nr 7, pp 35-37 (USSR)

ABSTRACT:

The propagation of the precision casting method with  
flushed out patterns depends also on the existence  
of cheap and available materials with the necessary  
properties. In the USSR, a mixture of paraffine and  
glyceric stearate is used which however does not have  
all the necessary qualities. The authors have tried  
to substitute the glyceric stearate by peat bitumen.  
For industrial purposes only peat with the highest  
contents of bitumen can be used. Of great importance  
too is the solvent used. The authors suggest benzine  
or benzole. In several tables the results of the

Card 1/2

30V/122-59-7-15/25

Peat Bitumens in Pattern Materials for Precision

Casting

experiments at the laboratory of NIITAvtoprom are given. They have been made with a paraffine-bitumen mixture of 70 : 30 mix ratio. The foundry experiments had been executed by means of a pressure die casting machine, design M.I. Henkin. This machine proved not to be suitable for this work. The machine has been improved by increasing the number of revolutions from 135 rpm to 200 rpm. The authors have also made shop experiments at Krasnogorsk. They made the introduction of a new component necessary, i.e. ceresine and colophony (BPZK in a rate of 5:2:2:1 or BPZ in a rate of 5:3:2). Both mixes can be used for precision investment casting, even during summer and in areas with high temperatures. There are 7 tables and 1 diagram

Card 2/2

KOVALEVSKIY, I.I., kand. tekhn. nauk; prinyali uchastiye: MERINOV, N.A., inzh.; LEVIN, V.B., inzh.; ~~SENINA, R.V.~~, teknik; LERNER, B.N., kand. tekhn. nauk; PRAVOVEROV, K.N., kand. tekhn. nauk; SOSNIN, Yu.P., kand. tekhn. nauk, red.; NINEMYAGI, D.K., red. izd-va; OSENKO, L.M., tekhn. red.

[Album of heating furnaces and stoves] Al'bom otopitel'nykh i bytovykh pechei. Moskva, Gos.izd-vo lit-ry po stroit., arkhitekt. i stroit. materialam. Pt.1. [Heating furnaces] Pechi otopitel'nye. (MIRA 14:6)  
1961. 85 p.

1. Akademiya stroitel'stva i arkhitektury SSSR. Institut po stroitel'stvu, Rostov-on-Don. 2. Laboratoriya otopitel'nykh pechei i ochagov nauchno-issledovatel'skogo instituta sanitarnoy tekhniki Akademii stroitel'stva i arkhitektury SSSR (for Merinov, Levin, Senina). 3. Laboratoriya otopleniya i ventilyatsii Instituta po stroitel'stvu Akademii stroitel'stva i arkhitektury SSSR (Rostov-na-Donu) (for Kovalevskiy). 4. Akademiya kommunal'nogo khozyaystva RSFSR imeni K.D.Pamfilova (for Lerner, Pravoverov)  
(Furnaces, Heating)

TROITSKAYA, F.B.: SENINA, R.V.

Small cast iron heating boilers operating on gas fuel. Sbor.  
trud. NIIST no.14:3-17 '63. (MIRA 17:10)

PREOBRAZHENSKIY, N.G.; SENINA, A.V.; SENINA, S.V.

Calculating the function of a source for an optically dense  
plasma layer. Izv. vys. ucheb. zav.; fiz. 8 no.6:67-74 '65.  
(MIRA 19:1)

1. Sibirskiy fiziko-tekhnicheskiy institut imeni V.D. Kuzne-  
tsova. Submitted March 11, 1964.

L 23751-66 EMT(1)/EEC(k)-2/I/EWP(k) IJP(c) WG

ACC NR: AP6008109

SOURCE CODE: UR/0139/66/000/001/0042/0047

AUTHOR: Preobrazhenskiy, N. G.; Senina, S. V.; Senina, A. V.

ORG: Siberian Physicotechnical Institute im. V. D. Kuznetsov (Sibirskiy fiziko-  
tekhnicheskii institut)

TITLE: On the time of <sup>2/</sup>longitudinal relaxation of oriented atoms

SOURCE: IVUZ. Fizika, no. 1, 1966, 42-47

TOPIC TAGS: relaxation process, Zeeman effect, optic spectrum, hyperfine structure

ABSTRACT: The authors present a detailed derivation of expressions for the time of longitudinal relaxation of a system of optically oriented atoms contained in a cell of cylindrical or spherical configuration. The derivation is based on the quantum theory of optical orientation, whereby the longitudinal relaxation is described with the aid of a density-matrix formalism. The results show that the formulas derived for the relaxation times can be useful not only to investigate relaxation processes in the radio frequency of the spectrum (set of Zeeman or hyperfine sub-levels), but also in optical spectroscopy (pair of levels connected with magnetic-dipole transition). Other possible applications of the results are briefly discussed. Orig. art. has: 41 formulas.

SUB CODE: 20/ SUBM DATE: 11Mar64/ ORIG REF: 001/ OTH REF: 005

Card 1/1 <sup>2</sup>

L 22474-66 EWT(1)/EEC(k)-2/T/EWP(k) LJP(c) WG  
 ACC NR: AP6009146 SOURCE CODE: UR/0139/65/000/005/0073/0076

AUTHORS: Preobrazhenskiy, N. G.; Senina, S. V. 40  
13

ORG: Siberian Physicotechnical Institute im. V. D. Kuznetsov  
 (Sibirskiy fiziko-tehnicheskii institut)

TITLE: On the influence of surface inhibitors on the relaxation  
 time of oriented atoms 21

SOURCE: IVUZ. Fizika, no. 5, 1965, 73-76

TOPIC TAGS: relaxation process, ~~surface active agent~~, surface *inhibitor*,  
~~transports~~, nuclear resonance

ABSTRACT: This is a continuation of earlier work by the authors  
 (Opt. i spectr. v. 17, 809, 1964), aimed at developing a theory cap-  
 able of simultaneously taking into account the influence exerted on  
 the relaxation time of the characteristics of either a buffer gas or  
 a surface inhibitor, used in applications of the double radio-optical  
 resonance method. In view of recent publication of data by R. Brewer  
 (J. Chem. Phys. v. 38, 3015, 1963, and earlier), and in view of the

Card 1/2



L 22474-66

ACC NR: AP6009146

fact that the earlier study was restricted by the lack of experimental data, the authors review their earlier work, as well as work by others, and calculate the diffusion of oriented atoms in a cell of cylindrical or spherical configuration, and especially the probability of disorientation occurring when the atom collides with a cell wall which is coated with an inhibitor. This probability is expressed in terms of a Hamiltonian, which in turn is approximated by means of a theory developed by J. Van Vleck (Rev. Mod. Phys. v. 23, 213, 1951). The final results obtained for this probability are in good agreement with recent experimental data. Although the results of the present article cannot be regarded as a relaxation theory that can take into account both the effect of a buffer gas and of an inhibitor, it is claimed that they contribute to a better understanding of the problem. Orig. art. has: 14 formulas.

SUB CODE: 20/ SUBM DATE: 14Mar64/ ORIG REF: 001/ OTH REF: 013

Card

2/2 BK

L 15545-66 EWT(1)/ETC(F)/EPF(n)-2/ENG(m) IJP(c) AT

AGC NR: AP6002083

SOURCE CODE: UR/0139/65/000/006/0067/0074

AUTHORS: Preobrazhenskiy, N. G.; Senina, A. V.; Senina, S. V.

ORG: Siberian Physicotechnical Institute im. V. D. Kuznetsov  
(Sibirskiy fiziko-tekhnicheskii institut) 4/6

TITLE: Calculation of the source function for an optically dense  
plasma layer 21, 41, 51

SOURCE: IVUZ. Fizika, no. 6, 1965, 67-74

TOPIC TAGS: plasma radiation, spectral line, plasma density,  
variational method, optic density

ABSTRACT: In view of the importance of the knowledge of the source function for the calculation of the contours and integral intensities of the emitted spectral lines and of the total energy lost by the plasma in a discrete spectrum, and in view of the incomplete development of methods of finding this function, the authors describe certain characteristic features of the calculation of the source function with the aid of the Ritz variational method, for an inhomogeneous optically-

Card 1/2 2

L 15545-66

ACC NR: AP6002083

dense plasma. Special attention is paid to the dependence of this function on the frequency and on the optical thickness of the layer, and the accuracy of the variational procedure. Methods of calculating the line contour with allowance for deviations from the Maxwellian distribution and for the contribution made by various interaction processes and correlations to the broadening are presented. An expression is derived for the density as a function of the optical transmission of the layer, for the case of contours of the Doppler, dispersion, Voigt, and 'statistical-wing' type. Although the errors of the method are appreciable, they do not exceed 100 per cent, and better accuracy is expected when the choice of trial functions is made more precise. This will be the subject of a separate article. Orig. art. has: 2 figures and 28 formulas.

SUB CODE: 20/ SUBM DATE: 11Mar64/ ORIG REF: 008/ OTH REF: 006

Card 2/2

DRANKIN, D.I., SENINA, Z.F.

Epidemiology of parotitis. Zhur.mikrobiol., epid. i immun.  
42 no.12:83-87 D '65. (MIRA 19:1)

1. Novokuznetskiy institut usovershenstvovaniya vrachey i  
Novokuznetskaya gorodskaya sanitarno-epidemiologicheskaya  
stantsiya.

MARTYNOWICZ, Tadeusz: SENIOW, Adam (Wroclaw)

Proteins in chick blood serum during experimental infection with  
*Eimeria tenella*. *Wiadomosci parazyt.*, Warsz. 2 no. 5 Suppl:263-264  
1956.

1. Katedra Parazytologii i Chorob Inwazyjnych WSR. i Zaklad  
Fizjologii Zwierzat Uniw. im. B. Bieruta.

(EIMERIA, infections,  
tenellum in chicks, blood proteins in (Pol))  
(BLOOD PROTEINS, in various diseases,  
exper. *Eimeria tenellum* infect. in chicks (Pol))

SENIOW, Adam

Changes in the electrophoretic spectre of blood serum proteins  
of rabbits in the course of trichinellosis. Wiadomosci parazyt.  
6 no.4:331-334 '60.

1. Department of Parasitology, Veterinary Faculty, Wroclaw, Poland.  
(TRICHINOSIS blood)  
(BLOOD PROTEINS)

SENIOU, A.  
SURNAME, Given Names

Country: Poland

Academic Degrees: not given  
Presumed

Affiliation: Ludwik Hirszfild Institute of Immunology and Experi-  
mental Therapy (Instytut Immunologii i Terapii Doswiadczalnej  
im. Ludwika Hirszfilda), Polish Academy of Sciences (PAN-Polska  
Akademia Nauk), Wroclaw; Director: Prof. Stefan SLOPEK, Dr.

Source:

Source: Warsaw, Postepy Higieny i Medycyny Doswiadczalnej, Vol XV, No 4,  
1961, pp 384-385.

Data: "Phagocytic and Serologic Studies During Immunization of Rabbits  
with Listeria Monocytogenes."

English abstract of article English, originally published in  
Arch Immunol i Terapii Dosw 1960, 8, 617.

Authors:

JASINSKA, S.

WACHNIK, Z.

SENIOU, A.

SKORSKI, A

GPO 981643

JASINSKA, Stanislaw; WACHNIK, Zenon, SENIOW, Adam; SKURSKI, Adam

Phagocytic and serological studies in the course of immunization of rabbits with listeria monocytogenes. Arch.immun.ter.dosw. 8 no.4:617-629 '60.

1. Department of Veterinary Microbiology, Department of Infectious Diseases, Department of Parasitology, High Agriculture School, Wroclaw.

(LISTERIA MONOCYTOGENES immunol)



SENIOW, Barbara Bratkowska

SEE: BRATKOWSKA-SENIOW, Barbara

SENIOW, Kazimierz

Sqcial Security Bureau budget for 1963. Praca zabezp spol 5 no.4:  
21-26 Ap '63.

SENIOW, Kazimierz

Budget of the Social Security Bureau for 1964. Praca zabezp  
spol 6 no. 5:25-31 My '64.

SENIOW, Stefania

Effect of parenteral protein therapy on parenchymal diseases of the kidneys. Polskie arch. med. wewn. 26 no.8:1209-1214 1956.

1. Z I Kliniki Chorob Wewn. A.M. w Warszawie, Kier. prof. dr. nauk med. A. Biernacki, Warszawa, ul. Nowogrodzka 59, I Klinika Chorob Wewn. A.M.

(KIDNEY DISEASES, therapy,  
proteins, parenteral admin. (Pol))  
(PROTEINS, therapeutic use,  
kidney dis., parenteral admin. (Pol))

SENIOW, Stefania

Transfusion of blood and plasma in the treatment of blood protein disorder. Polskie arch. med. wewn. 26 no.12:1843-1846 1956.

1. Z I Kliniki Chorob Wewnętrznych A.M. w Warszawie  
Kierownik: prof. dr. nauk med. A. Biernacki. Warszawa,  
Nowogrodzka 59. I Klinika Chorob Wewnętrznych.

(BLOOD PROTEINS

disord., ther., blood transfusion (Pol))

(BLOOD TRANSFUSION, in various dis.

blood protein disord. (Pol))

SENIOW, Stefania

Certain problems of the dynamic equilibrium of systemic proteins, with special reference to dehydration states. Polskie arch.med. wewn. 28 no.4:524-525 1958.

1. Z I Kliniki Chorob Wewn. A.M. w Warszawie. Kierownik: prof. dr med. A. Biernacki.

(DEHYDRATION, blood in  
proteins (Pol))

(BLOOD PROTEINS, in various dis.  
dehydration (Pol))

BORKOWSKI, Maciej; KAMINSKI, Bogdan; SENIOW, Stefania; SZCZERBAN, Jerzy

Regeneration of the liver following partial resection of its parenchyma.  
Polski tygod. lek. 14 no.47:2057-2064 23 Nov 59.

1. (Z Zaklady Chirurgii Doswiadczalnej Polskiej Akademii Nauk:  
kierownik: doc. dr Jan Nielubowicz)  
(LIVER, physiol.) (REGENERATION)

SENIOW, Stefania; FAJDA, Zbigniew

Case of sprue syndrome related to *Lamblia intestinalis*. Polskie  
arch.med.wewn. 29 no.5:671-675 '59.

1. Z I Kliniki Chorob Wewnętrznych A. M. w Warszawie Kierownik:  
prof. dr nauk med. A.Biernacki.  
(GIARDIASIS compl.)  
(SPRUE etiol.)



SENIOW, Stefania; OSTROWSKI, Kazimierz

Disorders of protein and fat metabolism during the course of vascular complications of diabetes (diabetic angiopathy). Polskie arch. med; wewn. 31 no.12:1607-1616 '61.

1. Z III Kliniki Chorob Wewnętrznych AM w Warszawie Kierownik: prof.  
dr med. E. Kodejszko.  
(DIABETES MELLITUS compl) (CARDIOVASCULAR DISEASES etiol)  
(BLOOD PROTEINS) (LIPIDS blood)

SENIOW, St.; ZGLICZYNSKI, S.L.

A case of arterial hypertension following arteriosclerosis of the renal artery. Pol. tyg. lek. 22 no.23:917-921 4 Je '62.

1. Z III Kliniki Chorob Wewnętrznych AM w Warszawie; kierownik: prof. dr E. Kodejszko i Zakładu Radiologii AM w Warszawie; kierownik: prof. dr nauk med. W. Zawadowski.

(HYPERTENSION RENAL etiol) (ARTERIOSCLEROSIS compl)  
(RENAL ARTERY dis)

POLAND

Eugeniusz KODNJSZKO, Stefania SENIOW and Izabella NIEDEWIEDZKA, Third Clinic of Internal Medicine, Medical College (III Klinika Chorob Wewnętrznych AM [Akademii Medycznej]) Head (kierownik) Prof Dr Eugeniusz KODNJSZKO; and Institute of Rheumatology (Instytut Reumatologii) Director (dyrektor) Dr Wł. BRUENEL, Warsaw.

"Observations on Insulin-Resistance."

Warsaw, Polski Tygodnik Lekarski, Vol 17, No 43, 22 Oct 1962; pp 1681-1684.

Abstract [English summary modified]: Studies in five relatively insulin-resistant diabetic patients and in 6 psychiatric patients with decreased insulin sensitivity (100 units did not induce hypoglycemic peak): agar gel electrophoresis revealed insulin antibodies between globulin fractions beta and gamma; clinical course (e.g. improvement with "diabatal" [tolbutamide] therapy) and prominence of antibody trace were always coincidental. Five immunoelectrophoresis strips, 32 Western, 1 Polish reference.

1/1

OSTROWSKI, Kazimierz; SENIOW, Stefania,

Glycoprotein fractions studies by electrophoresis in the vascular complications of diabetes. Pol. arch. med. wewn. 33 no.1:33-37 '62.

1. Z III Kliniki Chorob Wewnętrznych AM w Warszawie Kierownik: prof. dr med. E. Kodejszko.

(GLYCOPROTEINS)	(BLOOD PROTEIN ELECTROPHORESIS)
(DIABETIC ANGIOPATHIES)	(DIABETES MELLITUS) (BLOOD CHEMICAL ANALYSIS)

KODEJSZKO, Eugeniusz; SENIOW, Stefania; NIEDZWIECKA, Izabella

Clinical significance of insulin resistance. Pol. arch.  
med. wewnet. 34 no.2:153-163 '64

1. Z III Kliniki Chorob Wewnetrznych AM w Warszawie (kierownik:  
prof.dr.med. E.Kodejszko) i z Panstwowego Instytutu Reumatologii  
w Warszawie (Dyrektor: dr.med. W.Bruhl).

\*—

CA  
SENIOW

10

Purification of crude anthracene. J. Bojanowski, St. Seniów, and H. Jedrysk. *Przemysł Chem.* 4, 285-90 (1948).— Two methods and flowsheets are given for producing refined anthracene (99% pure), carbazole (88% pure), and phenanthrene (83% pure) from crude anthracene. In the 1st method, KOH is used to sep. out the carbazole; the anthracene fraction is purified by using high-boiling pyridine bases. The 2nd method is based entirely on the use of solvents. Anthracene oil is sep. from the cake by washing the crude anthracene with hot solvent naphtha and filtering or centrifuging at 15°. The resulting cake (contg. about 44% anthracene) is boiled in toluene said. at 15° with crude anthracene, followed by double filtration at 30° and 15° to sep. 90% pure anthracene from carbazole. The 90% anthracene is then boiled in high-boiling pyridine bases and the purified anthracene crystal. out at 15°. Distg. off the solvent leaves a 90% pure anthracene. The carbazole fraction is boiled in benzene and filtered at 15° to give 55% carbazole and 85% phenanthrene. The 55% carbazole is then purified by crystal. low-boiling pyridine bases being used as the solvent. Distg. off the solvent leaves carbazole, 88% pure. The carbazole may be further purified to more than 95% by using CCl<sub>4</sub>. The yields vary between 93 and 95% for 95% pure anthracene; 90 and 92% for 80% pure carbazole; and about 80% for 85% pure phenanthrene. Frank Gonet

ASAC SLA METALLURGICAL LITERATURE CLASSIFICATION

L 40092-66

ACC NR:

AT6016429

EWT(m)/T/EWP(t)/ETI/EWP(k)

(A)

IJP(c)

JD/HW/DJ/GD/JH

SOURCE CODE: UR/0000/65/000/000/0204/0209

AUTHORS: Livanov, V. A.; Shteyninger, V. R.; Molodchinina, S. P.; Molodchinin, Ye.  
V.; Senishenkov, A. V.

ORG: none

TITLE: The rolling of thin-walled tubes from slightly deformable aluminum alloys

SOURCE: AN SSSR. Institut metallurgii. Metallovedeniye legkikh splavov (Metallography of light alloys). Moscow, Izd-vo Nauka, 1965, 204-209

TOPIC TAGS: aluminum alloy, metal <sup>deformation</sup>, roll forging, <sup>hot rolling, metal tube</sup> / D1  
aluminum alloy, D16 aluminum alloy, AMg6 aluminum alloy

ABSTRACT: Tests were performed to determine the feasibility and best means of producing thin-walled tubes of alloys D1, D16 and AMg6 by the method of heat rolling. Test data recordings show the mechanical properties of alloy specimens as a function of temperature and as a function of the process by which the alloy is milled. Improved technological properties of the tube specimens are afforded by the hot-rolling process. It was found that alloys D1 and D16 are easily rolled in the temperature interval 120--220C without intermediate tempering. Alloy AMg6 (with no restriction on chemical content) can, in the annealed state, be rolled in the same temperature interval. The maximum rolling temperature for AMg6 in the nonannealed condition is about 150C. The hot-rolling technique is more productive than the cold

Card 1/2

Card 2/2

SENISSEN, W.

Senisson, W. Formulas for mean lateral and longitudinal errors of the points in a rectilinear and equilateral polygon with consideration of errors of four-point connection. (Conclusion) p. 49.

GEODEZJA I KARTOGRAFIA

Vol. 2, No. 1, 1953.

Vol. 5, No. 1, 1956.

Warszawa, Poland

SO: Monthly List of East European Accessions, (EEAL), LC, Vol. 5, No. 10 Oct. 56



SENISSON, W

*Senisson, W.*

3985

520.5:510.2

*MS*

Senisson W. Application of Cracovian Zero Tables and Means of Direct Determination of the Most Probable Values of Unknown in Sets of Linear Equations.

POL

„Zastosowanie krakowianowych tabel zerujacych oraz sposoby bezposredniego wyznaczania najprawdopodobniejszych wartosci niewiadomych w ukladach rownan liniowych”. Przegląd Geodezyjny, No. 4, 1954, pp. 110-114.

The author deals with the application of the Cracovian zero tables to adjustment computation. The introduction of certain symbols for the purpose of zeroing the tables — in columns or lines — has made it possible to combine certain of the problems of this calculus into compact but lucid schemes. In addition to describing the method, the author cites examples which give, inter alia, a solution for a set of normal equations and the inversion of the symmetrical table. An example quoted by the author for determining, without having to compute normal equations, unknown values from correction equations illustrates the economic aspect of the method. The solving of examples does not need a knowledge of Cracovian algebra, and is confined solely to performing multiplications and additions on a calculating machine.

*RDW*

SENISSON, W.

"Formulas of a New Type of Direct Determination of a Term of Inverted Triangular Cracovian and Their Application to Direct Determination of Unknowns from the Optional Triangular Table of Coefficients of Lineal Equations." P. 140, (PRZEGLAD GEODEZYJNY, Vol. 10, No. 5, May 1954. Warszawa, Poland.)

SO: Monthly List of East European Accessions, (EEAL), LC, Vol. 3, No. 12, Dec. 1954, Uncl.

SINELSON, W.

Formulas for mean lateral and longitudinal errors of the points  
in a rectilinear and equilateral polygon with consideration of  
errors of four-point connection. p. 216.

GEODEZJA I KARTOGRAFIA, Vol. 4, no. 4, 1955.

POLAND

SOURCE: EAST EUROPEAN ACCESSIONS LIST LC Vol. 5, August 1956.  
no. 7,

SENISSON, Vitol'd [Senisson, Witold]

Application of Hausbrandt's "auxiliary symbols" in calculations.

Geod.1 kart. no.10:14-23 D '56.

(MLRA 10:2)

(Geodesy)

SENISSON, W.

Mean diagonal errors of points in a rectilinear, equilateral, reciprocally connected polygon relative to the length of the connected sides and taking into account the mean coordinated-connection errors. (To be contd.). p. 107.

GEODEZJA I KARTOGRAFIA. (Polska Akademia Nauk. Komitet Geodezji)  
Warszawa. Vol. 7, no. 2, 1958  
Poland/

Monthly List of East European Accessions Index (EEAI), LC, Vol. 8, no. 6, June 1959  
Uncl.

SENISSE, W.

Mean diagonal errors of points in a rectilinear, equilateral, reciprocally connected polygon relative to the length of the connected sides and taking into account the mean coordinated-connection errors. (Conclusion) p. 162.

GEODEZJA I KARTOGRAFIA. )Polska Akademia Nauk. Komitet Geodezji)  
Warszawa. Vol. 7, no. 3, 1958  
Poland/

Monthly List of East European Accessions Index (EFAI), LC, Vol. 8, no. 6, June 1959  
Uncl.

SENITSKAYA, T. T.

110-4-9/25

AUTHORS: Rozenkrants, A.S., and Senitskaya, T.T., Candidates of Technical Sciences

TITLE: A Wattmeter Method for the Harmonic Analysis of Electrical Quantities (Vattmetrovyi metod garmonicheskogo analiza elektricheskikh velichin)

PERIODICAL: Vestnik Elektropromyshlennosti, 1958, No 4, pp. 28 - 30 (USSR).

ABSTRACT: A simple and reasonably accurate method of measuring harmonics of electrical quantities is proposed. Active power is the product of current and voltage of the same frequency. If either the voltage or the current is sinusoidal and the other is not, then the active power, when the frequency of the sinusoidal magnitude coincides with that of one of the harmonics of the un-sinusoidal quantities, does not depend on the values of these other harmonics. The proposed wattmeter method is based on this principle. One winding of the wattmeter is connected to the non-sinusoidal magnitude, for example, current and the other to a purely sinusoidal one, for example, voltage. The expression for the power includes the cosine of the angle of lag of the current, which may be arbitrary. However, if the generator frequency is varied slightly to differ from the frequency of the measured harmonic

Card 1/2

SENITSKIY, Yu.E.

Calculation of the general stability of oil derricks. Izv.vys.-  
uch.zav.; stroi. i arkhit 5 no.4:75-85 '62. (MIRA 15:9)

1. Kuybyshevskiy inzhenerno-stroitel'nyy institut imeni Mikoyana.  
(Oil well drilling rigs)



SENITSKIY, Yu.M. (Kuybyshev)

Transverse impact on a rod of continuous or composite section.  
Inzh. zhur. 5 no.4:697-704 '65. (MIRA 18:9)

SENITSKIY, Yu.E.

Approximate estimate of the carrying-capacity reserve of derricks.  
Izv. vys. ucheb. zav.; neft' i gaz 7 no.5:95-100 '64. (MIRA 17:9)

1. Kuybyshevskiy inzhenerno-stritel'nyy institut im. A.I. Mikoyana.

L 26590-66 EWT(d)/EWT(m)/EWP(w)/EWP(v)/EWP(k)/EWA(h)/ETC(m)-6 IJP(c) WW/

ACC NR: AP6011329 EM

SOURCE CODE: UR/0198/66/002/003/0015/0020

AUTHOR: Senitskiy, Yu. E. (Kuybyshev)

ORG: Kuybyshev Structural Engineering Institute (Kuybyshevskiy inzhenerno-stroitelnyy institut)

TITLE: On the solution of a dynamic problem for a flat spherical shell

SOURCE: Prikladnaya mekhanika, v. 2, no. 3, 1966, 15-20

TOPIC TAGS: shell theory, integral transform, spheric shell structure, partial differential equation, Bessel function

ABSTRACT: The moment theory for shells is used to solve the dynamic loading problem for a flat spherical shell. The load  $Z(r, t)$  is assumed to be aperiodic and axisymmetric, and the initial conditions are given by

$$W(r, 0) = f(r); \quad \frac{\partial}{\partial t} W(r, 0) = g(r),$$

where  $W$  represents the displacement function. The boundary conditions are those for a hinged support

$$r=a, t>0 \quad W(a, t) = 0; \quad \nabla^2 W(a, t) = 0.$$

Card 1/3

L 26590-66

ACC NR: AP6011329

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The two fourth-order partial differential equations in  $W$  and the stress function  $\varphi(r, t)$  are solved using integral transforms and representing the desired functions  $W$  and  $\varphi$  in terms of Fourier-Bessel series, or

$$W(r, t) = \frac{2}{a^2} \sum_{l=1}^{\infty} \left\{ \frac{c^2}{D} \int_0^t \int_0^a \frac{Z(r, \tau)}{\omega_l} \sin \omega_l (t - \tau) r J_0(\xi_l r) d\tau dr + \right. \\ \left. + \int_0^a \left[ f(r) \cos \omega_l t + \frac{g(r)}{\omega_l} \sin \omega_l t \right] r J_0(\xi_l r) dr \right\} \frac{J_0(\xi_l r)}{[J_1(\xi_l a)]^2} \\ \omega_l = \sqrt{\lambda_l^2 + b_l^2}$$

and

$$\varphi(r, t) = \frac{2b^2 q h}{a^2} \sum_{l=1}^{\infty} \frac{c^2}{D} \left\{ \int_0^t u \ln \frac{r}{u} J_0(\xi_l u) \times \right. \\ \left. \times \left[ \int_0^t \int_0^a \frac{Z(r, \tau)}{\omega_l} \sin \omega_l (t - \tau) r J_0(\xi_l r) d\tau dr \right] du \right\} \frac{1}{[J_1(\xi_l a)]^2} +$$

Card 2/3